

Future Airspace Strategy Implementation North (FASI-N)
Manchester Terminal Manoeuvring Area (MTMA)
Liverpool Airport (EGGP)

Gateway documentation:
Stage 1 Define

Step 1B Design Principles and Stakeholder Engagement Feedback
V1.3



NATS

NATS Uncontrolled

Publication history

Issue	Month/Year	Change Requests in this issue
Issue 1.0	March/ 2020	Submitted to the CAA
Issue 1.1	April/ 2020	A note has been added to Section 3.2 to explain that this is the first Stage 1B submission and associated stakeholder engagement, out of the 2 MTMA and 2 ScTMA ACPs. Response to stakeholder feedback for DP14 (Page 14) updated to include additional correspondence.
Issue 1.2	April/ 2020	Section 3.2.1 included to cover clarification on engagement with community and local stakeholders, which is covered under individual airport ACPs.
Issue 1.3	May/ 2020	In the final Design Principles table, the supporting notes for DP9 and DP14 were amended (typing error and information was previously under the wrong DP).

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1. Introduction

This document forms part of the document set required in accordance with the Civil Aviation Authority's (CAA) CAP1616 Airspace Change Process. This document aims to provide adequate evidence to satisfy: *Stage 1 Define Gateway, Step 1B Design Principles*.

NATS formally commenced an Airspace Change Proposal in October 2019 through the submission of a Statement of Need to the CAA ([link](#)). This outlined the requirement for an airspace change in order to interface with Liverpool Airport's proposed low-level changes. An Assessment Meeting was held with the CAA in January 2020, where NATS expanded upon their Statement of Need and submitted a proposed timeline – as outlined in the Assessment Meeting minutes ([link](#)).

This document describes the stakeholder engagement NATS completed on a set of draft Design Principles and how feedback influenced the evolution of the final Design Principles, as listed in the Executive Summary.

2. Executive Summary and Final Design Principles

The following list summarises the final Design Principles which have resulted from the stakeholder engagement described in Section 4.

The Design Principles have been split into general themes which align to the general objectives of this Airspace Change Proposal, including safety and environmental.

This document describes how stakeholder feedback has influenced the evolution of the final Design Principles – as listed below – from the stakeholder engagement. NATS have submitted these Design Principles to the CAA, to complete the Define Gateway. The submission of this document targeted the CAA's April 2020 Gateway Assessment Meeting (24/04/20) and was submitted four weeks prior (27/03/20). Subject to approval of Stage 1, NATS will formally adopt these Design Principles for the MTMA Liverpool Airspace Change Proposal.

No	Final Design Principle and Priority	Category	Notes
1	The airspace will maintain or enhance current levels of Safety (High)	Safety	
2	The proposed airspace will maintain or enhance operational resilience of the ATC network (High)	Operational	
3	The proposed airspace design will yield the greatest capacity benefits from systemisation (High)	Operational	
4	The MTMA airspace design will provide a compatible and optimised interface between the Free Route Airspace (FRA) and ATS network (High)	Technical	
5	The proposed MTMA airspace will facilitate optimised network economic performance (Medium)	Economic	This includes track mileage/ fuel-burn/ route charges

6	The proposed MTMA airspace will facilitate the reduction of CO ₂ emissions per flight (Medium)	Environmental	
7	Minimise environmental impacts to stakeholders on the ground (note: network changes are >7,000ft, the position of the interface with the airport's lower level routes will be determined by the airport, hence impacts below 7,000ft will be addressed in the separate airport-sponsored ACP) (Low)	Environmental	
8	The MTMA airspace should be compatible with the requirements of the MoD and take into consideration the requirements of the defence industry stakeholders (Medium)	Operational	
9	The impacts on GA and other civilian airspace users due to MTMA should be minimised (Medium)	Operational	<p>This includes a wide variety of other airspace users such as emergency, recreational, training and sporting aviation.</p> <p>Consider where impacts might be greatest by considering known VFR significant areas and Military-use areas against placement of airspace structures</p>
10	The classification and volume of controlled airspace required for the MTMA should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users (Medium)	Technical	This may include releasing CAS as appropriate
11	The route network linking Airport procedures with the enroute phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of PBN (High)	Technical	Where appropriate, the use of RNP should be considered if the fleet mix can support it.
12	The MTMA airspace design will provide a compatible and optimised interface with London Airspace Modernisation Programme (LAMP) design (High)	Technical	Closely spaced routes across the interface.
13	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it (High)	Policy	<p>The CAA have stated that this DP is required by all change sponsors. CAP1711 describes what airspace modernisation must deliver including:</p> <ul style="list-style-type: none"> - the need to increase aviation capacity; - growth to be sustainable; - the need to maximise the utilisation of existing runway

		capacity.
14	The airspace should introduce improved Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) for all aircraft (Medium)	Environmental

3. Engagement Activities and Stakeholders

3.1 Stakeholders

NATS identified relevant and representative stakeholders to engage on a set of draft Design Principles. This was based on the following criteria:

- *Who is directly impacted by the proposed change?*
- *Who is indirectly impacted?*
- *Who is potentially impacted?*
- *Who's help may be required?*
- *Who knows about the proposed airspace change?*
- *Who has an interest in the proposed airspace change?*

Using these measures – alongside a known set of stakeholders - the following 51 aviation and local stakeholders were identified:

- 10 Airports/ Airfields within a potentially affected area – BAE Warton, Barton, Birmingham, Blackpool, Doncaster, East Midlands, Hawarden, Leeds, Liverpool and Manchester
- The top 4 airlines who operate from Liverpool Airport (accounting for over 85% of departures in 2019) – easyJet, Flybe, Ryanair and Wizz Air
- The MoD via the DAATM (Defence and Air Traffic Management) function
- 4 AoNBs (Area of Outstanding Natural Beauty)/ National Parks in the surrounding area – Cannock Chase, Clywdian Range, Forest of Bowland and the Peak District

NATS also engaged with 32 relevant stakeholders from the NATMAC (National Air Traffic Management Advisory Committee) group including representatives of GA (General Aviation) and recreational aviation organisations.

As the proposed changes will not make changes to airspace structures or procedures below 7,000ft, local community stakeholders were not included in this engagement. (Changes to the airspace structure below 7000ft will be addressed by the FASI-N changes sponsored by the individual airports).

A full list of all 51 stakeholders can be found in Appendix A: All Stakeholders.

3.2 Engagement

NATS created a set of draft Design Principles – listed in Section 3.3 below – which were based on their submitted Statement of Need ([link](#)) and known objectives to achieve through this Airspace Change Proposal. The draft Design Principles were based on how to achieve an optimal high-level network design alongside the consideration of factors such as environmental impact and the potential effect on other airspace users.

The draft Design Principles include mandatory statements - such as ensuring safety and accordance with the Airspace Modernisation Strategy - alongside aspirational objectives which could potentially be compromised.

The draft principles have also each been assigned a category – such as environmental or operational - which align to the general objectives of this Airspace Change Proposal.

After identifying a representative group of stakeholders (described in Section 3.1), NATS provided them with a set of draft Design Principles for feedback on. Stakeholders were sent the draft Design Principles via email on Tuesday 25th February and were asked to provide feedback by Monday 16th March, a period of just under 3 weeks.

Stakeholders who had not responded were sent a follow-up email on Monday 16th March and given an additional three days to respond. Stakeholders were asked to respond even if they had no specific comments.

Email correspondence was used for engagement on the draft Design Principles as this allowed NATS to easily contact all stakeholders who could potentially be impacted by this proposal. Face to face engagement was not deemed necessary as the draft Design Principles are a set of high-level objectives based on the rationale covered in the Statement of Need alongside the Airspace Modernisation Strategy; both of which can be accessed remotely.

The draft Design Principles for this ACP are also purposely similar to those used for the other one MTMA (Manchester/ East Midlands) and two ScTMA (Edinburgh and Glasgow) ACPs. It should be noted that this MTMA Liverpool Stage 1B is the first of the four to be engaged on and submitted to the CAA; with the remaining MTMA and two ScTMA submissions in the subsequent months. There are separate portal entries for all four ACPs which can be checked for progress and document uploads.

Therefore – as some stakeholders will be asked to comment on more than one set of draft principles – email correspondence was less intrusive and time-consuming than face to face engagement.

Alongside the formal engagement emails sent to all stakeholders, NATS also gave an update on the PLAS programme of work (including this ACP) to the Lead Operator Panel in December 2019. This was held at Heathrow and attended by a variety of aviation stakeholders including aircraft manufacturers, airlines and the CAA. The notes for this have been provided alongside this document ^(Ref 2).

3.2.1 Engagement with Community Stakeholders

At the Assessment Meeting for this ACP – the minutes of which can be found [here](#) on the portal – NATS presented this as a scalable Level 1 ACP.

Under the FASI-N partnership structure, NATS is responsible for changes to the route network above 7,000ft - including STARs and Holds – which this ACP covers. Airports including Liverpool John Lennon Airport, will be responsible for the ACPs and associated changes below 7,000ft; such as SIDs and arrival transitions. As such, consultation and engagement with community/ local stakeholders throughout the CAP1616 process is the responsibility of the airports.

NATS have proposed that this ACP is treated as a scaled Level 1 ACP in acknowledgement that proposed designs could potentially impact traffic or proposed designs just below 7,000ft. NATS will continue to engage closely with neighbouring change sponsors – such as low-level airports – and will ensure that all potential impacts are fully communicated through engagement and supporting analysis. However, community and local stakeholders are not an appropriate type of stakeholder under this ACP; impacts to these groups will be covered by the airport ACPs.

NATS acknowledges that it is the responsibility of the airports to engage with community stakeholders in association with their ACPs. NATS will work closely with these airports as key stakeholders and ensure that any potential impacts to their designs, traffic or procedures below 7,000ft are identified and engaged on.

The CAA will confirm the level of this ACP at Stage 2B.

3.3 Draft Design Principles

No	Draft Design Principle	Category	Notes
1	The airspace will maintain or enhance current levels of Safety	Safety	
2	The proposed airspace will maintain or enhance operational resilience of the ATC network	Operational	
3	The proposed airspace design will yield the greatest capacity benefits from systemisation	Operational	
4	The MTMA airspace design will provide a compatible and optimised interface between the Free Route Airspace (FRA) and ATS network	Technical	
5	The proposed MTMA airspace will facilitate optimised network economic performance	Economic	This includes track mileage/ fuel-burn/ route charges
6	The proposed MTMA airspace will facilitate the reduction of CO ₂ emissions per flight	Environmental	
7	Minimise environmental impacts to stakeholders on the ground (note: network changes are >7,000ft, the position of the interface with the airport's lower level routes will be determined by the airport, hence impacts below 7,000ft will be addressed in the separate airport-sponsored ACP)	Environmental	
8	The MTMA airspace should be compatible with the requirements of the MoD	Operational	
9	The impacts on GA and other civilian airspace users due to MTMA should be minimised	Operational	Consider where impacts might be greatest by considering known VFR significant areas and Military-use areas against placement of airspace structures
10	The volume of controlled airspace required for the MTMA should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users	Technical	This may include releasing CAS as appropriate
11	The route network linking Airport procedures with the enroute phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of	Technical	Where appropriate, the use of RNP should be considered if the fleet mix can support it.

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12	The MTMA airspace design will provide a compatible and optimised interface with London Airspace Modernisation Programme (LAMP) design	Technical	Closely spaced routes across the interface.
13	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it.	Policy	The CAA have stated that this DP is required by all change sponsors. CAP1711 describes what airspace modernisation must deliver including: - the need to increase aviation capacity; - growth to be sustainable; - the need to maximise the utilisation of existing runway capacity.
14	The airspace should introduce improved Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) for all aircraft	Environmental	

4. Draft Design Principles Feedback

From the 51 individual stakeholders contacted and engaged with, NATS received responses from 12 stakeholders. The feedback has been summarised in the following sub-sections (4.1 - 4.14) which correspond to which draft Design Principle the feedback was in response to. NATS has responded to each comment alongside an explanation into how this has impacted the final Design Principle wording.

NATS has assigned a priority to each Design Principle based on the feedback received and whether it is mandatory for NATS to comply with the principle e.g. safety or a compulsory policy. The priorities used are *high, medium and low*.

NATS acknowledges that Design Principles which have been assigned a "medium" or "low" priority may have to be compromised against the mandatory principles with a "high" priority. However, NATS is committed to meet all of the Design Principles as best as possible during the upcoming Stage 2 Design work.

Alongside the feedback specific to the draft Design Principles covered in the following sections, a number of stakeholders submitted general comments which have been summarised below:

- NATS received feedback from the MoD which expressed approval for all 14 of the draft Design Principles.
- A representative from the Skydive Northwest centre responded that they would not be affected if the proposed changes remain within the potentially impacted area shown on the portal. NATS will continue to engage with stakeholders during the Stage 2 design work so any potential impact changes will be communicated.

- Airlines UK supported and agreed with all of the draft Design Principles except from a comment made against DP10, covered in Section 4.10 below.
- British Skydiving responded that they had forwarded the draft Design Principles to 3 Parachute Training Organisations (PTO) in the surrounding area to allow them to comment.
- The Airfield Operators Group (AOG) replied that they had no comments or objections.
- A representative from the British Balloon and Airship Club (BBAC) responded that they approved all of the draft Design Principles.
- Manchester Airport approved the draft Design Principles and had no further comments to make.

4.1 Draft Design Principle 1 - The airspace will maintain or enhance current levels of safety

Stakeholder	Feedback	NATS' Response
Honourable Company of Air Pilots (HCAP)	This should remain as No 1 but it must apply to overall safety, to account for any adverse impact on the safety of aircraft operating outside controlled airspace. Thus, the safety appraisal must also look at whether the changes making inadvertent infringement more likely (perhaps because of increased complexity as well as changed boundaries) or increase the mid-air collision risk of aircraft operating outside the new vertical and lateral boundaries.	It is not currently known whether NATS proposed airspace design will include any changes to controller airspace boundaries or classification. However, NATS can guarantee that any changes – including those to other airspace structures or procedures – will be part of a full safety assessment. This will include new and changing hazards, associated risks and mitigations – such as those suggested.

Summary and priority: There will be no change to the wording of this Design Principle as a consequence of the feedback received. NATS have assigned a **“high”** priority to this principle as the maintenance or, where possible improvement, of safety is at the forefront of any airspace change NATS proposes.

4.2 Draft Design Principle 2 - The proposed airspace will maintain or enhance operational resilience of the ATC network

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This principle has been assigned a **“high”** priority as operational resilience is a key driver behind this proposal and any deterioration to this would not be accepted.

4.3 Draft Design Principle 3 - The proposed airspace design will yield the greatest capacity benefits from systemisation

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. It has been assigned a **“high”** priority as a key driver behind this airspace change and a requirement of the Airspace Modernisation Strategy (DP13), which this proposal is supporting.

4.4 Draft Design Principle 4 - The MTMA airspace design will provide a compatible and optimised interface between the Free Route Airspace (FRA) and ATS network

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This has been assigned a **“high”** principle because any design which is not able to fully integrate with the neighbouring FRA and ATS networks would not be progressed. NATS recognises that any proposed airspace change must work alongside current airspace and any known future changes.

This is in line with DP12 which is concerning the alignment with the London Airspace Modernisation Programme (LAMP) design.

4.5 Draft Design Principle 5 - The proposed MTMA airspace will facilitate optimised network economic performance

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This Design Principle has been assigned a **“medium”** priority as NATS is committed to facilitate economic benefits through improve airspace and procedure designs. A proposed design should seek to drive economic growth through improvements such as reduced fuel burn or route charges.

4.6 Draft Design Principle 6 - The proposed MTMA airspace will facilitate the reduction of CO₂ emissions per flight

Stakeholder	Feedback	NATS' Response
HCAP	This principle should be combined with current principles 7 & 14 into a new Principle No 3 so that environmental issues are given appropriate priority.	<p>These three principles cover different environmental mitigation techniques associated with different impacts.</p> <p>Mitigating CO₂ and noise impacts are based on the altitude of proposed changes i.e. noise is a priority below 7,000ft and environmental impacts above. Therefore, these can be evaluated discretely and should be kept as separate principles.</p> <p>NATS is committed to improve Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) procedures which support environmental initiatives but also safety/ workload benefits. Likewise, this principle can be evaluated separately from the other two principles: meeting one of the principles would not automatically mean that the other two are met.</p> <p>Combining these three individual objectives would also reduce the discreet nuances covered by each which, as covered above, can be evaluated separately.</p> <p>This Design Principle, alongside DP14, have been assigned a “medium” priority as mitigating environmental impacts is a significant objective for NATS (albeit not mandatory). DP7 has been given a “low” priority as mitigating environmental/ noise impacts below 7,000ft will primarily be the responsibility of airports however, NATS will support this where possible.</p>

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This has been assigned a **“medium”** priority in recognition of the importance in mitigating environmental impacts, where possible. It has not been assigned the highest priority as there is a possibility that it may need to be compromised against a mandatory principle such as safety.

4.7 Draft Design Principle 7 - Minimise environmental impacts to stakeholders on the ground (note: network changes are >7,000ft, the position of the interface with the airport's lower level routes will be determined by the airport, hence impacts below 7,000ft will be addressed in the separate airport sponsored ACP)

Stakeholder	Feedback	NATS' Response
HCAP	This principle should be combined with current principles 6 & 14 into a new Principle No 3 so that environmental issues are given appropriate priority.	Covered under the same comment above, for DP6 .

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This Design Principle has been assigned a **“low”** priority as the proposed network changes covered by this submission will not make airspace or procedure changes below 7,000ft. However, this should be included as a separate principle because NATS is committed to work alongside other change sponsors – such as airports – in order to mitigate noise impact to local stakeholders on the ground, where possible.

4.8 Draft Design Principle 8 - The MTMA airspace should be compatible with the requirements of the MoD

Alongside the comment summarised below, the MoD (BAE Warton) wanted to ascertain NATS’ definition of *“will”* and *“should”* when used in Design Principle wording, before deciding which should be used. NATS responded that the two words reflect a difference in priority with the word *“will”* implying a mandatory Design Principle. The word *“should”* could be used for a principle where a compromise may be required but NATS could state compliance where possible. Based on this, the MoD responded that they would prefer the use of *“will”* but would be content with *“should”*.

Stakeholder	Feedback	NATS’ Response
BAE Warton	<p>Whilst noting that DP8 caters for MoD compatibility – and as we have responded previously in other ACP DPs – we would ask that industry activities such as ours are taken into consideration.</p> <p>We recognise that our activities cut across both environments covered by DP8 and DP9 but would ask that specific mention is made of defence industry activity.</p> <p>We note that the NATS FRA (Free-Route Airspace) submission used the word <i>“will”</i> for this DP, whereas this MTMA principle uses <i>“should”</i>. We would be content if the wording for DP8 was modified, in line with the FRA DP, to: <i>“The MTMA airspace should / will be compatible with the requirements of the MoD and take into consideration the requirements of defence industry stakeholders”</i>.</p> <p>The MoD would prefer the word <i>“will”</i> to be used but would be content with the use of <i>“should”</i>.</p>	<p>Alongside the general requirements of the MoD, NATS is committed to also include those of the wider defence sector. Therefore, to reflect this, the wording will be updated to include <i>“ ... and take into consideration the requirements of the defence industry stakeholders”</i>. This is consistent with DP8 (MoD requirements) of the FRA Stage 1B Design Principles.</p> <p>NATS cannot guarantee that there will be no impacts on other airspace users, such as the MoD. The design options will seek to minimise this as much as possible, but compromises may be required.</p>

Summary and priority: In response to feedback received, NATS will update the wording of this principle to include consideration of the wider defence industry. This principle has been assigned a **“medium”** priority in recognition of military users and their requirements/ use of the airspace. This is the same priority as DP9 which relates to minimising impact on the GA community.

4.9 Draft Design Principle 9 - The impacts on GA and other civilian airspace users due to MTMA should be minimised

Stakeholder	Feedback	NATS’ Response
British Hang Gliding and Paragliding	As a general principle, ACPs should minimise impact on GA including sporting and recreational aviation, and to ensure their continued right	NATS cannot guarantee that there will be no impact (including access) to other airspace users however, this principle highlights the pledge to minimise this. Other airspace user’s requirements and locality will be taken into

Stakeholder	Feedback	NATS' Response
Association (BHPA)	of access to the airspace.	consideration, through continued engagement. The notes of this Design Principle will be updated to include examples of GA and other civilian users for clarity: <i>"This includes a wide variety of other airspace users such as emergency, recreational, training and sporting aviation"</i> .
British Microlight Aircraft Association (BMAA)	Sponsors must accept the submission that GA including sporting and recreational aviation is entitled to continued safe use of airspace and that commercial aviation does not have a right to limit airspace access.	As described above, the supporting note of this Design Principle has been updated to specifically mention types of GA and civilian air traffic. Although it is too early to pre-empt potential changes to airspace classification/ volume, NATS will fully articulate justification for proposed changes alongside any anticipated impacts for stakeholders. NATS will also ensure adherence to the CAA policy of keeping the volume of controlled airspace to the minimum necessary to meet the needs of UK airspace users.
BMAA	Sponsors should ensure that there will be measures to allow flexible use of airspace and prepare for the wider use of electronic conspicuity devices and interoperability with existing e-conspicuity e.g. FLARM and Pilot Aware etc.	As mentioned above, NATS has not begun work on the design stage of this ACP. If appropriate, NATS will consider the use of flexible operations to assist with the expedition of traffic. Stakeholders, such as GA communities, will be fully engaged with as part of Stage 2 to gather feedback on proposed designs. However, it should be noted that technology changes associated with GA/ outside of CAS are out of scope, as this proposal solely relates to airspace change.
Denbigh Gliding Club	Denbigh Gliding (and other gliding operations) routinely operate gliders in North Wales up to FL195 where permitted, and higher within the designated TRA(G)s.	NATS will continue to engage with stakeholders, such as gliding representatives, during Stage 2. This will allow stakeholders to provide feedback on design options, ensuring that their own requirements are taken into consideration.
HCAP	This is an important principle. UK airspace is a national resource that needs to be shared across the entire user base, including GA, drone and military operators. Where necessary, additional controllers/control stations should be provided to ensure that current GA (and military) activity levels can be sustained while also providing for the needs of future drone operations.	NATS fully supports the need to ensure equitable and appropriate access for other airspace users. Controller workload and training requirements will be considered as part of the safety case which will be submitted as part of the final Airspace Change Proposal.

Summary and priority: In response to feedback received, NATS will update the descriptor note of this principle to state specific airspace users. This principle has been assigned a **"medium"** priority in recognition of other airspace users and their requirements/ use of the airspace. This is the same priority as DP8 which relates to minimising impact on the MoD.

4.10 Draft Design Principle 10 - The volume of controlled airspace required for the MTMA should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users

Stakeholder	Feedback	NATS' Response
Airlines UK	You need to be very careful with release of CAS. The problem is that things change and a piece of CAS that may appear not to be required/ used at the moment may be needed in the future; and once given away, it is a very expensive and difficult process to get it back. Consider this very carefully before giving it away as once gone it is very difficult to get it back.	Any changes to airspace will be based on a variety of factors such as safe containment of procedures, current usage and what is required to deliver a safe and efficient operation. NATS will not make any changes to airspace without a full impact analysis, including any possibility of requiring it back.
BMAA	The BMAA considers that the UK airspace's default classification is G and that sponsors must establish a safety case for proposing to change this class or add any further restrictions or requirements by their ACP.	Any proposed changes to CAS volume or classification by NATS will require submission of a comprehensive safety case. The proposed CAS will be the minimum required to deliver a safe and efficient operation. The wording of this Design Principle will be updated to include " <i>classification</i> " alongside " <i>volume</i> ".
BMAA	All sponsors must demonstrate that alternatives have been considered such as RMZ and TMZ before considering controlled airspace.	As part of the later Step 2A (Options Development), NATS is required to develop a comprehensive long-list of options that address the Statement of Need. Although it is not possible to pre-determine design options – such as the suggestions made – NATS will provide rationale for all options, before evaluating against the Design Principles.
BMAA	Where Class E is proposed, without a TMZ or RMZ should be considered as the default option.	Before passing Stage 1, it is not possible to start work on the Stage 2 design work nor to predetermine the design options. It is therefore too early to ascertain whether this specific comment from the BMAA will be relevant. NATS will re-engage with stakeholders as part of Stage 2 to seek feedback on developed options.

Summary and priority: In response to feedback received, the wording of this Design Principle will be updated slightly to include airspace "classification", alongside volume. NATS have assigned this principle a "**medium**" priority in line with DP8 and DP9 which relate to impact on other airspace users.

4.11 Draft Design Principle 11 - The route network linking Airport procedures with the enroute phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of PBN.

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This principle has been assigned a "**high**" priority because the use of PBN is required to achieve the safety, environmental and operational objectives of this airspace change. The use of modern technology is an enabler for ensuring an efficient airspace design and is in support of the wider Airspace Modernisation Strategy (covered under DP13).

4.12 Draft Design Principle 12 - The MTMA airspace design will provide a compatible and optimised interface with London Airspace Modernisation Programme (LAMP) design

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This has been assigned a **“high”** principle because any design which is not able to fully integrate with the neighbouring LAMP design would not be progressed. NATS recognises that any proposed airspace change must work alongside current airspace and any known future changes. This is in line with DP4 which is concerning the alignment with the Free Route Airspace (FRA) and ATS network.

4.13 Draft Design Principle 13 - Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it.

Stakeholder	Feedback	NATS' Response
BMAA	In line with the principles of the Airspace Modernisation (was FAS) principles the ACP must respect the requirement for minimum airspace volumes design for efficiency and reduced environmental impact. These principles will include: <ul style="list-style-type: none"> - Minimum size of controlled airspace; - Minimum number of departure/ arrival routes; - Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of CAS footprint. 	NATS is committed to adhere to CAP1711 which describes what airspace modernisation must deliver, including the principles – such as those mentioned – which are fundamental to airspace change.

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. This principle has been assigned a **“high”** priority as this airspace change proposal and all associated changes as part of it, are required to be in compliance with the Airspace Modernisation Strategy.

4.14 Draft Design Principle 14 - The airspace should introduce improved Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) for all aircraft

Stakeholder	Feedback	NATS' Response
HCAP	Where the requirements of CCO and CDO conflict, CCO should have priority, as this provides the greatest alleviation of environmental impact. This principle should be combined with current principles 6 & 7 into a new Principle No 3 so that environmental issues are given appropriate priority.	NATS is aware of guidance from Eurocontrol stating that a level-off in descent is more detrimental to fuel-burn; therefore, CDAs should be prioritised over CCOs. The environmental impact of design options will be fully evaluated as part of the Stage 2 work. NATS contacted HCAP to explain NATS' position as per the Eurocontrol guidance, and to check whether their comment was meant to be the other way around i.e. CDOs should be prioritised over CCOs. NATS also explained that they still intend to introduce both types of operation if possible; the guidance would be considered only if a priority call was required. The comment relating to combining this principle with DPs 6 & 7 has been covered under the same comment above, for DP6.

Summary and priority: NATS did not receive any feedback which suggested any changes to this Design Principle. NATS have assigned this principle a **"medium"** priority for this principle as although it is not a mandatory objective for this airspace change and may need to be compromised, designs should seek to achieve this where possible.

5. References

Reference	Title and Description
Ref 1 Available publicly	NATS MTMA EGGP Statement of Need Link to the document on the online portal
Ref 2 Supplied to the CAA and redacted version uploaded to the portal	Lead Operator Carrier Panel Minutes - 041219

6. Appendix A: All Stakeholders

Organisation	Notes
BAE Warton (Management and Operations)	
Barton Airfield (Management and Operations)	
Birmingham Airport (Management and Operations)	
Blackpool Airport (Management and Operations)	
Doncaster Airport (Management and Operations)	
East Midlands Airport (Management and Operations)	
Hawarden Airport (Management and Operations)	
Leeds Airport (Management and Operations)	
Liverpool Airport (Management and Operations)	
Manchester Airport (Management and Operations)	
easyJet	Accounted for 44% of departures from Liverpool Airport in 2019
Flybe	Accounted for 6% of departures from Liverpool Airport in 2019
Ryanair	Accounted for 30% of departures from Liverpool Airport in 2019
Wizz Air	Accounted for 5% of departures from Liverpool Airport in 2019
MoD DAATM (Defence and Air Traffic Management)	NERL Contact
Cannock Chase	AoNB
Clywdian Range	AoNB
Forest of Bowland	AoNB (Area of Outstanding Natural Beauty)
Peak District	National Park
Airlines UK	Relevant organisation from the NATMAC distribution list
Airspace4All	Relevant organisation from the NATMAC distribution list
Airport Operators Association (AOA)	Relevant organisation from the NATMAC distribution list
Airfield Operators Group (AOG)	Relevant organisation from the NATMAC distribution list
Aircraft Owners and Pilot Association (AOPA)	Relevant organisation from the NATMAC distribution list
Airspace Change Organising Group (ACOG)	Relevant organisation from the NATMAC distribution list
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)	Relevant organisation from the NATMAC distribution list
Aviation Environment Federation (AEF)	Relevant organisation from the NATMAC distribution list
British Airways (BA)	Relevant organisation from the NATMAC distribution list

Organisation	Notes
British Airline Pilots Association (BALPA)	Relevant organisation from the NATMAC distribution list
British Balloon and Airship Club	Relevant organisation from the NATMAC distribution list
British Business and General Aviation Association (BBGA)	Relevant organisation from the NATMAC distribution list
British Gliding Association (BGA)	Relevant organisation from the NATMAC distribution list
British Helicopter Association (BHA)	Relevant organisation from the NATMAC distribution list
British Hang Gliding and Paragliding Association (BHPA)	Relevant organisation from the NATMAC distribution list
British Microlight Aircraft Association (BMAA) / General Aviation Safety Council (GASCo)	Relevant organisation from the NATMAC distribution list
British Model Flying Association (BMFA)	Relevant organisation from the NATMAC distribution list
British Skydiving	Relevant organisation from the NATMAC distribution list
Drone Major	Relevant organisation from the NATMAC distribution list
General Aviation Alliance (GAA)	Relevant organisation from the NATMAC distribution list
Guild of Air Traffic Control Officers (GATCO)	Relevant organisation from the NATMAC distribution list
Honourable Company of Air Pilots (HCAP)	Relevant organisation from the NATMAC distribution list
Helicopter Club of Great Britain (HCGB)	Relevant organisation from the NATMAC distribution list
Heavy Airlines	Relevant organisation from the NATMAC distribution list
Iprosurv	Relevant organisation from the NATMAC distribution list
Isle of Man CAA	Relevant organisation from the NATMAC distribution list
Light Aircraft Association (LAA)	Relevant organisation from the NATMAC distribution list
Low Fare Airlines	Relevant organisation from the NATMAC distribution list
MoD – DAATM	Relevant organisation from the NATMAC distribution list
PPL/ IR (Europe)	Relevant organisation from the NATMAC distribution list
UK Airprox Board (UKAB)	Relevant organisation from the NATMAC distribution list
UK Flight Safety Committee (UKFSC)	Relevant organisation from the NATMAC distribution list

7. Appendix B: Engagement Evidence

7.1 Original email sent to stakeholders

From: Airspace Consultation

Sent: 25 February 2020 18:00

Subject: NATS FASI-N MTMA Liverpool ACP Design Principles

Dear Colleague,

NATS are currently commencing an Airspace Change Proposal (ACP) to make changes to the ATC route network for routes to/from Liverpool Airport in and around the Manchester Terminal Manoeuvring Area (MTMA). This ACP is being progressed under the Future Airspace Strategy Implementation – North (FASI-N) programme.

As part of this process we would like to involve you in the formulation of the design principles which will be used by the project. This is a required part of the UK CAP1616 airspace change process.

[Further details on this ACP can be found on the CAA portal by following this link.](#)

Below are a draft set of design principles for the FASI-N MTMA changes. Please can you review these and give us your comments.

If you have suggestions for additional design principles we would welcome your input.

If you are content with the proposed design principles please press the "Approve" voting button (or reply "Approve")

If you have comments please reply to this email and annotate the table below.

No	Design Principle	Category	Notes	Stakeholder Comments
1	The airspace will maintain or enhance current levels of safety	Safety		
2	The proposed airspace will maintain or enhance operational resilience of the ATC network	Operational		
3	The proposed airspace design will yield the greatest capacity benefits from systemisation	Operational		
4	The MTMA airspace design will provide a compatible and optimised interface between the Free Route Airspace (FRA) and ATS network	Technical		
5	The proposed MTMA airspace will facilitate optimised network economic performance	Economic	this includes track mileage/ fuel-burn/ route charges	
6	The proposed MTMA airspace will facilitate the reduction of CO ₂ emissions per flight	Environmental		
7	Minimise environmental impacts to stakeholders on the ground (note: network changes are >7,000ft, the position of the interface with the airport's lower level routes will be determined by the airport, hence impacts below 7000ft will be addressed in the separate airport sponsored ACP)	Environmental		
8	The MTMA airspace should be compatible with the requirements of the MoD	Operational		
9	The impacts on GA and other civilian airspace users due to MTMA should be minimised	Operational	Consider where impacts might be greatest by considering known VFR significant areas and Military-use areas against placement of airspace structures	
10	The volume of controlled airspace required for the MTMA should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of UK airspace users	Technical	This may include releasing CAS as appropriate	
11	The route network linking Airport procedures with the enroute phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of PBN.	Technical	Where appropriate, the use of RNP should be considered if the fleet mix can support it	
12	The MTMA airspace design will provide a compatible and optimised interface with London Airspace Modernisation Programme (LAMP) design	Technical	Closely spaced routes across the interface.	

No	Design Principle	Category	Notes	Stakeholder Comments
13	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it	Policy	The CAA have stated that this DP is required by all change sponsors. CAP1711 describes what airspace modernisation must deliver including: - the need to increase aviation capacity; - growth to be sustainable; - the need to maximise the utilisation of existing runway capacity.	
14	The airspace should introduce improved Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) for all aircraft	Environmental	Feedback from Airlines (Lead Operator Panel 04/12/19).	
	Add further suggested Design Principles HERE.			

We would appreciate your feedback by 16th March. Many thanks for your time.

Best regards,
NATS Airspace Change Team



7.2 Follow-up email sent to stakeholders who had not submitted a response

From: Airspace Consultation

Sent: 16 March 2020 15:26

Subject: NATS FASI-N MTMA Liverpool ACP Design Principles

Dear Colleague,

We note that we have not received a response to our proposed draft Design Principles sent below. Although we originally asked for comments by today, we would like to offer you a further few days and will accept comments up to Thursday 19th March.

Similarly, if you have no comments that would also be useful to receive.

Kind regards,
NATS Airspace Change Team

